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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,283	06/16/2005	Hirotooshi Kamata		2627

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EXAMINER

SASTRI, SATYA B

ART UNIT	PAPER NUMBER
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1713

MAIL DATE	DELIVERY MODE
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09/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/539,283

Applicant(s)

KAMATA ET AL.

Examiner

Satya B. Sastri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☒ Claim(s) 2, 8 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/16/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: See Continuation Sheet.

Continuation of Attachment(s) 6). Other: Machine translated documents of JP 11084126A and JP 10324819 A.

DETAILED ACTION

1. This office action is in response to application filed on June 16, 2005. Claims 1-9 are now pending in the application.

Information Disclosure Statement

2. In the IDS filed on 6/16/05, the reference JP 04-211975 is not deemed as pertinent prior art and therefore, struck off in the 1449 form.
3. A third-party submission has been filed under 37 CFR 1.99 on April 11, 2006 in the published application.

To ensure that a third-party submission does not amount to a protest or pre-grant opposition, 37 CFR 1.99 does not permit the third party to have the right to insist that the examiner consider any of the patents or publications submitted. Furthermore, if the submission or part of the submission is not in compliance with 37 CFR 1.99, that noncompliant submission or part thereof will not be entered in the application file. Therefore, unless the examiner clearly cites a patent or publication on form PTO-892, Notice of References Cited and such reference is used in a rejection or its relevance is actually discussed during prosecution, consideration by the examiner of any patent or publication submitted in a third-party submission cannot be presumed.

If the applicant wants to ensure that the information in a third-party submission is considered by the examiner, the applicant should submit the information in an IDS in compliance

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with 37 CFR 1.97 and 37 CFR 1.98. An individual who has a duty to disclose under 37 CFR 1.56 should also submit any material information contained in a third-party submission to the Office in an IDS in compliance with 37 CFR 1.97 and 37 CFR 1.98 to ensure such material information is properly disclosed to the examiner.

Drawings

4. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because of poor picture quality. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

5. Claims 2, 4, 7-9 are objected to for the following informalities:

In claim 2, parenthesis enclosing the description of the various symbols in formulae (1)-(4) may be deleted and the phrase "in the formula," may be replaced by the word "wherein". In the description of symbols for formula (3), the symbol for number of carbon atoms in the alkylene group (1) causes confusion as it appears like a numeral.

Additionally, instant claim appears to recite the Markush group for elements (a), (b), (c) and (d) of (i) and that for (iii) incorrectly. Consequently, it is impossible to determine which elements of the group are required by the claims. When materials recited in a claim are so related as to constitute a proper Markush group, they may be recited in the conventional manner, or alternatively. For example, if "wherein R is a material selected from the group consisting of A, B, C and D" is a proper limitation, then "wherein R is A, B, C or D" shall also be considered proper. See MPEP § 2173.05(h).

The phrase "terminal (provided that the total of (i) to (iii) is 100 mass parts)" may be replaced by "terminal, with the proviso that the total of (i) to (iii) is 100 mass parts".

In claim 4, the word "wherein" should be deleted.

In claim 7, the word "ratios" may be replaced by the word "amounts".

In claim 8, the phrase "as defined in claim 2" should be deleted as the claim does not depend on claim 2 and a description of the various symbols in formulae (1)-(4) must be provided.

In claim 9, the phrase "has further" may be replaced by "further comprises".

Appropriate corrections are required.

Claim Rejections - 35 USC § 102 and 103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takasaki et al. (JP 11084126, machine translation) in view of Isato et al. (JP 10-324819, machine translation).

Pending official English translations, machine translated versions are used in the body of this rejection.

Takasaki et al. disclose a composition comprising a black coloring material, novolac epoxyacrylate having carboxyl groups, photoinitiator and a compound having ethylenically unsaturated group (abstract).

As for the black coloring material, the prior art discloses SPECIAL BLACK 550, SPECIAL BLACK 350, SPECIAL BLACK 250, SPECIAL BLACK 100 and RAVEN 1040 and other commercially available carbon blacks suitable as black pigment (paragraphs 0017, 0018).

The novolac epoxyacrylate comprising carboxylic acid groups and ethylenic unsaturation is prepared by reacting epoxy groups of the novolac epoxy resin with a monocarboxylic unsaturated acid and subsequently reacting with a polybasic anhydride (paragraphs 0022, 0023).

The prior art discloses that the compositions include a photoinitiator in amounts of 0.1 to 50 parts by wt, based on 100 parts by mass of novolac epoxyacrylate resin, a polyfunctional thiol

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compound in amounts of 0.03 to 5 % by wt. (paragraphs 0024-0028), ethylenically unsaturated compounds such as multifunctional (meth)acrylates in amounts of 1-50 % by wt. (paragraph 0030) and solvents (paragraph 0037, 0034, 0036).

The prior art is silent with regard to compositions comprising a copolymer having amino groups or its quaternary ammonium salt.

The secondary reference to Isato et al. discloses compositions comprising carbon black-polymer composite particles useful in black matrix compositions. Such particles are formed from the ionic interaction of the functional groups on the block or graft polymer comprising a segment having amino, amido and/or nitrile groups with carboxyl groups on carbon black surface (abstract, paragraphs 0050, 0058 and 0094). It would have been obvious to one of ordinary skill in the art to include an amino group-containing polymer as disclosed by Isato et al. in the compositions of carboxyl group-containing carbon black compositions of Takasaki et al. and thereby arrive at the presently cited claims because Isato et al. teach that carbon black-polymer composite formed from the ionic interaction of carboxyl groups on carbon surface and the amino groups of graft/block polymer has excellent dispersibility in various media in spite of its high carbon content (abstract).

It is noted that specific carbon black pigments SPECIAL BLACK 550, SPECIAL BLACK 350, SPECIAL BLACK 250, SPECIAL BLACK 100 and RAVEN 1040 disclosed in the prior art to Takasaki et al. are also disclosed as suitable carbon black pigments in the instant specification (Table 1). Therefore, the particle size, surface area, oil absorptivity and carboxyl group concentration of such particles must inherently be the same as those recited in instant claims.

With regard to claim 3, Isato et al. disclose that the amount of polymer may range from 1 to 1000 per 100 parts of carbon black (paragraph 0197). With regard to claim 7, Isato et al. appears to disclose a carbon black-polymer composite content of 5 to 60% by wt. based on the wt. of the photopolymerizable component i.e. based on the ethylenically unsaturated monomer and novolak epoxyacrylate of Takasaki et al.

With regard to claim 5, it is noted that the claim has a product-by-process format. Where product by process claims are rejected over a prior art product that appears to be the same, the burden is shifted to applicants to establish an unobvious difference, even if the production processes are different. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983). Furthermore, the patentability of a product claim rests on the product formed and not on the method by which it is produced. In re Thorpe, 227, USPQ 984 (Fed. Cir. 1985).

9. Claims 1, 3, 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ikeda et al. (EP 0987303 A1).

Prior art to Ikeda et al. discloses a method for grafting a polymer onto carbon black surface. The carbon black having a specific surface in the range of 30-120 m²/g and a DPB oil absorption in the range of 10-70 ml/100g is mixed with a polymer having a reactive group capable of reacting with the functional group on the surface of the carbon black in the presence of a suitable dispersing medium (paragraphs 0024-0029, 0080).

The liquid dispersing medium may include solvents such as water, alcohols, liquid paraffins etc. (paragraph 0092).

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The carbon black particle size may preferably range from 0.001 to 0.2 microns (1-200 nm, paragraph 0031). The carbon surface preferably comprises carboxylic groups such that the pH value is less than 7, particularly in the range of 1-5 (paragraphs 0030-0032).

With regard to the monomers used for graft or block polymers that manifest high affinity or compatibility towards carbon black, the prior art discloses a variety of aziridine group-containing monomers (pages 9-16).

The compositions may comprise 5-100 parts of polymer per 100 parts of carbon (paragraph 0090). A ball mill, a mixer or a kneader may be used as the mixing device (paragraphs 0088, 0089).

Thus, Ikeda et al. disclose compositions comprising carboxyl group containing carbon black, a resin comprising aziridine group-containing monomers and a dispersing medium.

Given the teaching that the pH of the carbon black may be less than 7, a reasonable basis exists to believe that the disclosed pH range encompasses surfaces that inherently comprise few carboxylic acid groups as recited in instant claim 1. Therefore, the presently cited claims are anticipated by the prior art.

In the alternative, it would have been obvious to one of ordinary skill in the art to include any of disclosed carbon blacks, include those with a presently claimed concentration of carboxylic groups on carbon black surface would be present once the Ikeda et al. composition is provided.

It has been held that where applicant claims a composition in terms of function, property or characteristic where said function is not explicitly shown by the reference and where the examiner has explained why the function, property or characteristic is considered inherent in the

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prior art, it is appropriate for the examiner to make a rejection under both the applicable section of 35 USC 102 and 35 USC 103 such that the burden is placed upon the applicant to provide clear evidence that the respective compositions do in fact differ. *In re Best*, 195 USPQ 430, 433 (CCPA 1977); *In re Fitzgerald et al.*, 205 USPQ 594, 596 (CCPA 1980).

In the set rejection set forth above, it is the examiner's position that the amino group as recited in instant claim 1 reads on aziridine group.

With regard to claim 5, it is noted that the claim has a product-by-process format. Where product by process claims are rejected over a prior art product that appears to be the same, the burden is shifted to applicants to establish an unobvious difference, even if the production processes are different. *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983). Furthermore, the patentability of a product claim rests on the product formed and not on the method by which it is produced. *In re Thorpe*, 227, USPQ 984 (Fed. Cir. 1985).

Allowable Subject Matter

10. Claims 2, 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Instant claims are allowable over prior art of record that does not teach or suggest the specific copolymer of claim 2 or 7.

Conclusion

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11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. X- references cited in the International search report to Emoto et al. (US 5,908,721), Kamata et al. (WO 02/093255), Katoh et al. (EP 1031579 A2) and Kamata et al. (WO 03/057784) A do not teach or suggest compositions comprising the specific carbon black and a polymer comprising an amino group or it's quaternary ammonium salt as recited in instant claims.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112. The examiner can be reached on Wednesdays and Fridays, 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached at (571) 272 1114.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Satya Sastri
SATYA SASTRI

September 12, 2007